

## Algebra and Calculus: Quiz 3

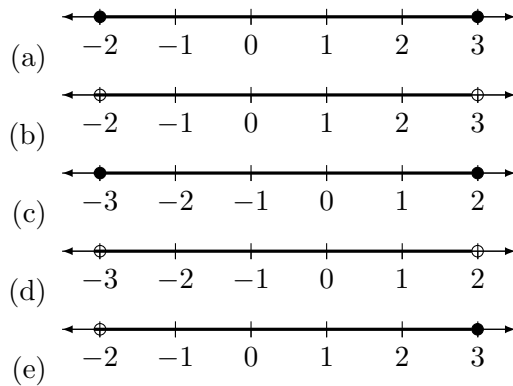
Name/NetID: \_\_\_\_\_

Complete all problems.

1. For **multiple choice** problems, circle the letter corresponding to the correct answer.
2. For **free response** problems, **show all work** and put a box around your final answer.

**Good luck!**

1. Choose the picture that represents the solution set of the inequality:  $x^2 - x - 6 < 0$ .



2. Find the equation of the line perpendicular to  $3x + 4y = 5$  at the point  $(-1, 2)$ .

- (a)  $y - 2 = \frac{4}{3}(x + 1)$
- (b)  $y - 1 = \frac{4}{3}(x + 2)$
- (c)  $y + 1 = \frac{4}{3}(x - 2)$
- (d)  $y + 2 = -\frac{3}{4}(x - 1)$
- (e)  $y - 2 = -\frac{3}{4}(x + 1)$

3. Apple suggests your new laptop should be kept in temperatures between 23 and 95 degrees Fahrenheit. Between which of the following temperatures in degrees **Celsius** should you keep your laptop? *Hint:*  $C = \frac{5}{9}(F - 32)$
- (a) 5 and 35
  - (b) -5 and 30
  - (c) -5 and 35
  - (d) -35 and 35
  - (e) -35 and 5
4. For which values does the inequality  $\frac{3}{x^2} - \frac{3}{x^2+1} > 0$  hold?
- (a) All real numbers except -1 and 1.
  - (b) All real numbers.
  - (c) All real numbers except 0, 1, and -1.
  - (d) All real numbers except 0.
  - (e) No real numbers.
5. Sketch  $y = |x + 3|$  and  $y = 2$ . Use the sketch to solve the inequality  $2 \geq |x + 3|$ .